



[4910-13-P]

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2012-0808; Directorate Identifier 2010-NM-170-AD; Amendment 39-17380; AD 2013-05-08]**

**RIN 2120-AA64**

**Airworthiness Directives; Airbus Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Airbus Model A330-200 and A330-300 series airplanes, and Model A340-200 and A340-300 series airplanes. This AD was prompted by reports of an elevator blocked in the down position due to two independent failures; first, the inability of a servo control to switch to active mode because it was not detected by a flight control computer; and second, an internal hydraulic leak due to the deterioration of an O-ring seal on a solenoid. This AD requires, depending on airplane configuration, modifying three flight control primary computers (FCPCs); modifying two flight control secondary computers (FCSCs); revising the airplane flight manual (AFM) to include certain information; replacing certain O-rings; and checking part number and replacing certain O-ring seals if needed. We are issuing this AD to detect and correct O-rings with incorrect part numbers whose deterioration could lead to improper sealing of solenoid valves; and to correct FCPC and FCSC

software to allow better control of elevator positioning; both conditions, if not corrected, could lead to the loss of elevator control on takeoff, and potentially reduce the controllability of the airplane.

**DATES:** This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Vladimir Ulyanov, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-1138; fax (425) 227-1149.

#### **SUPPLEMENTARY INFORMATION:**

##### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on August 14, 2012 (77 FR 48469). That NPRM proposed to correct an unsafe condition for the specified products.

The Mandatory Continuing Airworthiness Information (MCAI) states:

This [European Aviation Safety Agency (EASA)] AD [2010-0081, dated April 27, 2010] deals with the two following points:

- Case of an elevator blocked in down position due to two independent failures one of which is hidden:

Each elevator is controlled by two servo controls. In normal operation:

- one servo control in active mode controlled by PRIM 1 (Green servo control),
- one servo control in damping mode (Yellow or Blue servo control) monitored by PRIM 2.

Change from active mode to damped mode is obtained by means of a mode selector which is controlled by two identical solenoid valves housed on the servo control. The sealing of each solenoid valve is ensured by four O-ring seals.

During pre-flight control checks, the flight crew of an A330-200 aeroplane observed that one of the elevators was blocked in down position, the ECAM [electronic centralized aircraft monitor] screen displaying “F/CTL PRIM 1 PITCH FAULT”.

This condition was due to two independent failures, one of which was dormant, which occurred on one of the elevators.

Investigations revealed that the origin of the elevator malfunction was due to the inability of the Yellow servo control to switch to active mode.

This inability:

- was caused by an internal hydraulic leak due to the deterioration of an O-ring seal on a solenoid valve,
- was not detected by the PRIM 2 computer nor announced to the flight crew.

- Incorrect Part Number (P/N) for solenoid valve O-ring seals in IPC [illustrated parts catalog]:

An incorrect O-ring seal P/N in IPC 27-34-51-1 could have led to the installation of O-ring seals incompatible with the hydraulic fluid, causing them to deteriorate.

These conditions if not detected could lead to the loss of elevator [control] on takeoff and, potentially reduce the controllability of the aeroplane.

The aim of EASA AD 2007-0009 was to:

- take over the requirements of AD F-2004-158, and
- require the terminating action for § (1), (2) and (4) of this [EASA] AD by introducing new capped seals on solenoid valves for A330-200 only.

This new [EASA] AD \* \* \* requires the embodiment of the latest software standard on the three Flight Control Primary Computers (FCPC) and on the two Flight Control Secondary Computers (FCSC) [by modifying the FCPCs and FCSCs] \* \* \*.

The modification is accomplished either by replacing the FCPCs and FCSCs with new FCPCs and FCSCs, or by replacing or reprogramming the on-board replaceable modules in the FCPCs and FCSCs. Required actions also include, depending on airplane configuration, the following actions: revising the AFM to include certain information; replacing certain O-rings; and checking part number and replacing certain O-ring seals if needed. You may obtain further information by examining the MCAI in the AD docket.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

### **Request for Exemption for Later Standards of FCPC Software**

Delta Air Lines, Inc. (Delta) requested that we revise the NPRM (77 FR 48469, August 14, 2012) to provide an exemption for later standards of FCPC software. Since completing Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008, Delta stated that it upgraded FCPC software from standard P9/M18 to newer standard P11A/M20A as specified in Airbus Mandatory Service Bulletin A330-27-3176, dated July 26, 2011. Delta noted that when there are significant differences between the airspeed sources, the autopilot (AP) and the auto-thrust (A/THR) are designed to disconnect, and the flight directors (FD) bars are automatically removed. Delta also noted that if two of the airspeed sources then read similar, yet erroneous numbers, the AP and A/THR will re-engage, and the FD bars will reappear. Delta stated that this newer standard addresses these safety concerns.

We agree to revise this AD to allow modification of the FCPC with the software identified in Airbus Mandatory Service Bulletin A330-27-3176, Revision 02, dated April 24, 2012, as well as the software identified in Airbus Mandatory Service Bulletin A330-27-3177, dated December 21, 2011; Airbus Mandatory Service Bulletin A340-27-4174, dated November 21, 2011; and Airbus Mandatory Service Bulletin A340-27-4162, Revision 01, dated September 17, 2012. We have added paragraph (o) to this AD to specify that modification of the three FCPC with new software specified in paragraphs (o)(1) through (o)(4) of this AD is acceptable for compliance with the requirements of paragraph (l) of this AD.

In addition, we have added new paragraph (p)(4) of this AD to give credit for performing actions before the effective date of this AD using Airbus Service Bulletin A330-27-3176, dated July 26, 2011; Airbus Mandatory Service Bulletin A330-27-3176, Revision 01, dated March 27, 2012; and Airbus Mandatory Service Bulletin A340-27-4162, dated January 10, 2012.

We are also considering further rulemaking that would correspond to EASA AD 2011-0199R1, dated February 17, 2012, to mandate implementation of these new FCPC standards.

**Request for Credit for Modification of FCPC Software Using Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, October 9, 2008**

Delta requested that we revise paragraph (o)(2) of the NPRM (77 FR 48469, August 14, 2012) to give credit for modification of FCPC software done using Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008. This service bulletin is the appropriate source of service information for accomplishing the actions required by paragraph (l) of the NPRM. Delta stated that paragraph (o)(2) of the NPRM provides credit, if those actions were performed using Airbus Service Bulletin A330-27-3144, dated April 2, 2009, but there are no statements giving credit for modifications of the FCPC performed using Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008.

We disagree with this request to revise this AD, but agree to clarify that this AD allows for previous accomplishment of the modification using Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008. Paragraph (l) of this AD mandates modifications of FCPC software using current revisions of the service

information, Airbus Service Bulletin A330-27-3144, Revision 01, dated July 16, 2009; or Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, October 9, 2008.

Paragraph (p)(2) of this AD (referred to as paragraph (o)(2) in the NPRM (77 FR 48469, August 14, 2012)) gives credit only for actions performed using previous revisions of the service information specified in paragraph (l) of this AD, i.e., Airbus Mandatory Service Bulletin A330-27-3144, dated April 2, 2009; and Airbus Mandatory Service Bulletin A330-27-3148, dated July 17, 2008. Since paragraph (f) of this AD indicates previous accomplishment of modifications do not need to be repeated, the intent of the comment is addressed. No change has been made to the AD in this regard.

**Request for Credit for Modification of FCSC Software Using Airbus Service Bulletin A330-27-3145, Revision 1, dated July 17, 2008**

Delta requested that we revise paragraph (o)(3) of the NPRM (77 FR 48469, August 14, 2012) to give credit for modification of the FCSC software done using Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008; and Airbus Service Bulletin A330-27-3145, dated December 16, 2008. Delta noted these service bulletins are referred to as the appropriate sources of service information for accomplishing the actions proposed by paragraph (m) of the NPRM. Delta stated that paragraph (o)(3) of the NPRM provides credit, if those actions were performed using Airbus Mandatory Service Bulletin A330-27-3146, dated June 1, 2007, but pointed out that there are no statements giving credit for modifications of the FCSC performed using Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008.

We disagree with this request to revise this AD but agree to clarify that this AD allows for previous accomplishment of the modification using Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008; and Airbus Service Bulletin A330-27-3145, dated December 16, 2008. Paragraph (m) of this AD mandates modifications of FCSC software using Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008; or Airbus Service Bulletin A330-27-3145, dated December 16, 2008. Paragraph (p)(3) of this AD (referred to as paragraph (o)(3) in the NPRM (77 FR 48469, August 14, 2012)) gives credit only for actions performed using previous revisions of the service information specified in paragraph (m) of this AD, i.e., Airbus Service Bulletin A330-27-3146, dated June 1, 2007. Since paragraph (f) of this AD indicates previous accomplishment of modifications do not need to be repeated, the intent of the comment is addressed. No change has been made to the AD in this regard.

**Request for Credit for Installation of Modified Servo-Controls Using Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006; and Airbus Mandatory Service Bulletin A330-27-3136, Revision 1, dated July 19, 2006**

Delta requested that we revise paragraph (p) of the NPRM (77 FR 48469, August 14, 2012) to give credit for the installation of modified servo-controls done using Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006; and Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006.



We disagree with this request to revise this AD, but agree to clarify that this AD allows for previous accomplishment of the installation using Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006; and Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006. Paragraph (q) of this AD (referred to as paragraph (p) of the NPRM (77 FR 48469, August 14, 2012)) provides terminating action for the actions required by paragraphs (g), (h), and (i) of this AD, if the installation of modified servo-controls was using Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006; and Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006. Since paragraph (f) of this AD indicates previous accomplishment of the installation not need to be repeated, the intent of the comment is addressed. No change has been made to the AD in this regard.

#### **Explanation of Change Made to this AD**

We have revised paragraph (n) of this AD to put the AFM text into Figure 1 to paragraph (n) of this AD, and included reference to the figure in that paragraph. This change does not affect the intent of that paragraph.

#### **Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously – and minor editorial changes. We have determined that these changes:

- Are consistent with the intent that was proposed in the NPRM (77 FR 48469, August 14, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (77 FR 48469, August 14, 2012).

### **Costs of Compliance**

We estimate that this AD will affect 41 products of U.S. registry. We also estimate that it will take about 5 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$0 per product. Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these parts. As we do not control warranty coverage for affected parties, some parties may incur costs higher than estimated here. Based on these figures, we estimate the cost of this AD to the U.S. operators to be \$17,425, or \$425 per product.

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator

finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM (77 FR 48469, August 14, 2012), the regulatory evaluation, any comments received, and other

information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new AD:

**2013-05-08 Airbus:** Amendment 39-17380. Docket No. FAA-2012-0808; Directorate Identifier 2010-NM-170-AD.

#### **(a) Effective Date**

This airworthiness directive (AD) becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Airbus airplanes, certificated in any category, specified in paragraphs (c)(1) and (c)(2) of this AD.

(1) Model A330-201, -202, -203, -223, -243, -301, -302, -303, -321, -322, -323, -341, -342, and -343 airplanes, all manufacturer serial numbers (MSN).

(2) Model A340-211, -212, -213, -311, -312, and -313 airplanes, all MSN.

**(d) Subject**

Air Transport Association (ATA) of America Code 27: Flight controls.

**(e) Reason**

This AD was prompted by reports of an elevator blocked in the down position due to two independent failures; first, the inability of a servo control to switch to active mode because it was not detected by a flight control computer; and second, an internal hydraulic leak due to the deterioration of an O-ring seal on a solenoid. We are issuing this detect and correct O-rings with incorrect part numbers whose deterioration could lead to improper sealing of solenoid valves; and to correct flight control primary computer (FCPC) and flight control secondary computer (FCSC) software to allow better control of elevator positioning; both conditions, if not corrected, could lead to the loss of elevator control on takeoff, and potentially reduce the controllability of the airplane.

**(f) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**(g) Replacement of O-ring Seals for Elevator Servo Controls Installed in Damping Position on Model A330-200 Series Airplanes Only**

For all Airbus Model A330-200 series airplanes, except those on which Airbus modifications 53969 or 54833 have been embodied in production: At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD, replace the O-ring seals installed on the two solenoid valves of each servo control using new O-ring seals, in accordance with Airbus All Operators Telex (AOT) A330-27A3129, Revision 01, dated July 16, 2004.

(1) Before the accumulation of 3,000 flight cycles by the servo control since first installation on an airplane, or 3,000 flight cycles since the installation of the solenoid valve on the servo control.

(2) Within 700 flight hours after the effective date of this AD.

**(h) Replacement of O-ring Seals on Spare Elevator Servo Controls Whose O-ring Seals Were Not Replaced as Required by Paragraph (g) of This AD**

For all Airbus Model A330-200 series airplanes, except those on which Airbus modifications 53969 or 54833 have been embodied in production: As of the effective date of this AD, before the installation of an elevator servo control on an Airbus Model A330-200 airplane, replace the O-ring seals installed on the two spare servo control solenoid valves using new O-ring seals, in accordance with Airbus AOT A330-27A3129, Revision 01, dated July 16, 2004.

**(i) Replacement of O-ring Seals with Part Number (P/N) MS28775-XXX or a Part Number that Cannot Be Identified**

For Model A330-200 series airplanes which have been modified as specified in Airbus AOT A330-27A3129, dated June 24, 2004, but which have not been modified as

specified in Airbus AOT A330-27A3129, Revision 01, dated July 16, 2004; except those airplanes on which Airbus modifications 53969 or 54833 have been embodied in production: Within 15 days after the effective date of this AD, check the part number (P/N) of the seals installed on the solenoid valve of the servo control of the elevator in the damping position. If the seals installed have P/N MS28775-XXX or a part number that cannot be identified, before further flight, replace the seals with new seals using a part number listed in paragraph (i)(1), (i)(2), or (i)(3) of this AD, in accordance with Airbus AOT A330-27A3129, Revision 01, dated July 16, 2004.

(1) Illustrated Parts Catalog (IPC) 27-34-51-1 item 130: NAS1611-011 or NAS1611-011A.

(2) IPC 27-34-51-1 item 140: NAS1611-012 or NAS1611-012A.

(3) IPC 27-34-51-1 item 150: NAS1611-013 or NAS1611-013A.

**(j) Replacement of O-ring Seals on Model A330-200, A330-300, A340-200, and A340-300 Series Airplanes**

For Model A330-200, A330-300, A340-200, and A340-300 series airplanes equipped with elevator servo controls P/N SC4800-2/-4/-7/-8 or SC4800-7/-8 modified into P/N SC4800-7A/-9, as specified in Airbus Service Bulletin A340-27-4083 or Airbus Service Bulletin A330-27-3076: Within 1,400 flight hours after the effective date of this AD, replace the O-ring seals installed on the two solenoid valves of each elevator servo control in damping position (except for Model A330-200 series airplanes which have to comply with paragraph (g) of this AD), and in active position, using a new O-ring seal P/N NAS1611-XXX or P/N NAS1611-XXXXA, in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A330-27A3131, Revision 01, dated

March 3, 2005 (for Model A330 airplanes); or Airbus Mandatory Service Bulletin A340-27A4130, Revision 01, dated March 3, 2005 (for Model A340 airplanes).

**(k) Replacement of O-ring Seals on Spare Elevator Servo Controls on Model A330-200, A330-300, A340-200, and A340-300 Series Airplanes**

For the spare elevator servo controls P/N SC4800-2/-4/-7/-8 or SC4800-7/-8 modified into P/N SC4800-7A/-9, as specified in Airbus Service Bulletin A340-27-4083 or Airbus Service Bulletin A330-27-3076: Before the installation of a spare elevator servo control on an airplane, replace the O-ring seals installed on the two spare servo control solenoid valves using a new O-ring seal P/N NAS1611-XXX or P/N NAS1611-XXXA, in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A330-27A3131, Revision 01, dated March 3, 2005 (for Model A330 airplanes); or Airbus Mandatory Service Bulletin A340-27A4130, Revision 01, dated March 3, 2005 (for Model A340 airplanes).

**(l) Modification of FCPCs**

For all Airbus Model A330-200 and A330-300 series airplanes, except those on which both Airbus modifications 53468 and 55697 have been embodied in production; and for all Airbus Model A340-200 and A340-300 series airplanes, except those on which both modifications 55879 and 55697 have been embodied in production: Within 24 months after the effective date of this AD, modify the three FCPCs, in accordance with the Accomplishment Instructions of the applicable service bulletin identified in paragraph (l)(1) or (l)(2) of this AD.



(1) Airbus Service Bulletin A330-27-3144, Revision 01, dated July 16, 2009; or Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008 (for Model A330 airplanes).

(2) Airbus Mandatory Service Bulletin A340-27-4144, dated October 19, 2009; or Airbus Mandatory Service Bulletin A340-27-4148, dated June 13, 2008 (for Model A340 airplanes).

**(m) Modification of FCSCs**

For all Airbus Model A330-200 and A330-300 series airplanes, except those on which both Airbus modifications 53468 and 55697 have been embodied in production; and for all Airbus Model A340-200 and A340-300 series airplanes, except those on which both modifications 55879 and 55697 have been embodied in production: Within 24 months after the effective date of this AD, modify both FCSCs, in accordance with the Accomplishment Instructions of the applicable service bulletin identified in paragraph (m)(1) or (m)(2) of this AD.

(1) Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008; or Airbus Service Bulletin A330-27-3145, dated December 16, 2008 (for Model A330 airplanes).

(2) Airbus Mandatory Service Bulletin A340-27-4146, June 1, 2007; or Airbus Service Bulletin A340-27-4145, dated December 16, 2008 (for Model A340 airplanes).

**(n) Revise the Airplane Flight Manual**

Before further flight, after doing the applicable actions required by both paragraphs (l) and (m) of this AD, remove the procedure specified in Figure 1 to paragraph (n) of this AD from the airplane flight manual, if inserted, in accordance with the instructions contained in Airbus Temporary Revision TR4, Issue 1.0, “TR 4.02.00/25 Issue 2 – Undetected Elevator Control Loss in Case of Dual Failure,” dated November 26, 2009, to the Airbus A330/A340 Airplane Flight Manual; and Airbus Temporary Revision TR22, Issue 1.0, “TR 4.02.00/40 Issue 2 – Undetected Elevator Control Loss in Case of Dual Failure,” dated November 26, 2009, to the Airbus A330/A340 Airplane Flight Manual.

**Figure 1 to Paragraph (n) – Procedure to be Removed**

**Undetected Elevator Control Loss in Case of Dual Failure**

On ground, before takeoff until takeoff power thrust setting, apply the following procedure.

- In the case of a F/CTL PRIM 1 FAULT, or F/CTL PRIM 1 PITCH FAULT:  
Turn off PRIM 1, then back on to perform a FCPC PRIM 1 reset.
  - If successful:  
Perform the normal pre-flight Flight Control check.
  - If unsuccessful:  
Return to the gate and require appropriate maintenance actions.
- In the case of a F/CTL ELEV SERVO FAULT: Return to the gate and require appropriate maintenance actions.

**(o) Optional Actions Acceptable for Compliance with the Modification Required by Paragraph (l) of This AD**

Accomplishing the actions specified in paragraphs (o)(1) through (o)(4) of this AD, as applicable, is acceptable for compliance with the modification required by paragraph (l) of this AD.

(1) For airplanes identified in Airbus Mandatory Service Bulletin A330-27-3176, Revision 02, dated April 24, 2012: Modification or replacement of the three FCPCs with software standard P11A/M20A on FCPC 2K2 hardware, in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A330-27-3176, Revision 02, dated April 24, 2012 (for Model A330 airplanes).

(2) For airplanes identified Airbus Mandatory Service Bulletin A330-27-3177, dated December 21, 2011: Modification or replacement of the three FCPCs with software standard P12A/M21A on FCPC 2K1 hardware, and with software standard M21A on FCPC 2K0 hardware, in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A330-27-3177, dated December 21, 2011 (for Model A330 airplanes).

(3) For airplanes identified in Airbus Mandatory Service Bulletin A340-27-4174, dated November 21, 2011: Modification or replacement of the three FCPCs with software standard L22A on FCPC 2K1 hardware, and with software standard L22A on FCPC 2K0 hardware, in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A340-27-4174, dated November 21, 2011 (for Model A340 airplanes).

(4) For airplanes identified in Airbus Mandatory Service Bulletin A340-27-4162, Revision 01, dated September 17, 2012: Modification or replacement of the three FCPCs with software standard L21A on FCPC 2K2 hardware in accordance with the Accomplishment Instructions of Airbus Mandatory Service Bulletin A340-27-4162, Revision 01, dated September 17, 2012 (for Model A340 airplanes).

**(p) Credit for Previous Actions**

This paragraph provides credit for certain actions described in the following paragraphs. The documents specified in paragraphs (p)(1) through (p)(5) of this AD are not incorporated by reference in this AD.

(1) This paragraph provides credit for replacements of the O-ring seals, as required by paragraphs (j) and (k) of this AD, if those actions were performed before the effective date of this AD using Airbus Service Bulletin A330-27A3131, dated September 22, 2004 (for Model A330 airplanes); or Airbus Service Bulletin 340-27A4130, dated September 22, 2004 (for Model A340 airplanes).

(2) This paragraph provides credit for modifications of the FCPC, as required by paragraph (l) of this AD, if those actions were performed before the effective date of this AD using Airbus Service Bulletin A330-27-3144, dated April 2, 2009 (for Model A330 airplanes); or Airbus Mandatory Service Bulletin A330-27-3148, dated July 17, 2008 (for Model A330 airplanes).

(3) This paragraph provides credit for modifications of the FCSCs, as required by paragraph (m) of this AD, if those actions were performed before the effective date of this AD using Airbus Mandatory Service Bulletin A330-27-3146, dated June 1, 2007 (for Model A330 airplanes).

(4) This paragraph provides credit for modification or replacement of the FCSCs specified in paragraph (o)(1) of this AD, if those actions were performed before the effective date of this AD using Airbus Mandatory Service Bulletin A330-27-3176, dated July 26, 2011; or Airbus Mandatory Service Bulletin A330-27-3176, Revision 01, dated March 27, 2012 (for Model A330 airplanes).

(5) This paragraph provides credit for modification or replacement of the FCSCs specified paragraph (o)(4) of this AD, if those actions were performed before the effective date of this AD using Airbus Mandatory Service Bulletin A340-27-4162, dated January 10, 2012 (for Model A340 airplanes).

**(q) Terminating Action**

Installation of modified servo-controls at all positions on Model A330-200 series airplanes in accordance with the Accomplishment Instructions of Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006; and Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006; terminates the actions required by paragraphs (g), (h), and (i) and of this AD.

**(r) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the International Branch, send it to ATTN: Vladimir Ulyanov, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-1138; fax (425) 227-1149. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Airworthy Product:** For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

**(s) Related Information**

(1) Refer to MCAI European Aviation Safety Agency Airworthiness Directive 2010-0081, dated April 27, 2010, and the service information specified in paragraphs (s)(1)(i) through (s)(1)(xix) of this AD, for related information.

(i) Airbus All Operators Telex (AOT) A330-27A3129, Revision 01, dated July 16, 2004.

(ii) Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006.

(iii) Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008.

(iv) Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008.

(v) Airbus Mandatory Service Bulletin A330-27-3176, Revision 02, dated April 24, 2012.

(vi) Airbus Mandatory Service Bulletin A330-27-3177, dated December 21, 2011.

(vii) Airbus Mandatory Service Bulletin A330-27A3131, Revision 01, dated March 3, 2005.

(viii) Airbus Mandatory Service Bulletin A340-27-4144, dated October 19, 2009.

(ix) Airbus Mandatory Service Bulletin A340-27-4146, dated June 1, 2007.

(x) Airbus Mandatory Service Bulletin A340-27-4148, dated June 13, 2008.

(xi) Airbus Mandatory Service Bulletin A340-27-4162, Revision 01, dated September 17, 2012.

(xii) Airbus Mandatory Service Bulletin A340-27-4174, dated November 21, 2011.

(xiii) Airbus Mandatory Service Bulletin A340-27A4130, Revision 01, dated March 3, 2005.

(xiv) Airbus Service Bulletin A330-27-3134, Revision 01, dated May 12, 2006.

(xv) Airbus Service Bulletin A330-27-3144, Revision 01, dated July 16, 2009.

(xvi) Airbus Service Bulletin A330-27-3145, dated December 16, 2008.

(xvii) Airbus Service Bulletin A340-27-4145, dated December 16, 2008.

(xviii) Airbus Temporary Revision TR4, Issue 1.0, “TR 4.02.00/25 Issue 2 – Undetected Elevator Control Loss in Case of Dual Failure,” dated November 26, 2009, to the Airbus A330/A340 Airplane Flight Manual.

(xix) Airbus Temporary Revision TR22, Issue 1.0, “TR 4.02.00/40 Issue 2 – Undetected Elevator Control Loss in Case of Dual Failure,” dated November 26, 2009, to the Airbus A330/A340 Airplane Flight Manual.

(2) For service information identified in this AD, contact Airbus SAS – Airworthiness Office – EAL, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France; telephone +33 5 61 93 36 96; fax +33 5 61 93 45 80; email [airworthiness.A330-A340@airbus.com](mailto:airworthiness.A330-A340@airbus.com); Internet <http://www.airbus.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.



**(t) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Airbus All Operators Telex (AOT) A330-27A3129, Revision 01, dated July 16, 2004.

(ii) Airbus Mandatory Service Bulletin A330-27-3136, Revision 01, dated July 19, 2006.

(iii) Airbus Mandatory Service Bulletin A330-27-3146, Revision 01, dated September 3, 2008.

(iv) Airbus Mandatory Service Bulletin A330-27-3148, Revision 01, dated October 9, 2008.

(v) Airbus Mandatory Service Bulletin A330-27-3176, Revision 02, dated April 24, 2012.

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(xix) Airbus Temporary Revision TR22, Issue 1.0, “TR 4.02.00/40 Issue 2 – Undetected Elevator Control Loss in Case of Dual Failure,” dated November 26, 2009, to the Airbus A330/A340 Airplane Flight Manual.

(3) For service information identified in this AD, contact Airbus SAS – Airworthiness Office – EAL, 1 Rond Point Maurice Bellonte, 31707 Blagnac Cedex, France; telephone +33 5 61 93 36 96; fax +33 5 61 93 45 80; email [airworthiness.A330-A340@airbus.com](mailto:airworthiness.A330-A340@airbus.com); Internet <http://www.airbus.com>.

(4) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on February 28, 2013.

Ali Bahrami,  
Manager,  
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